

13.0 Naturita, Colorado, Disposal Site

13.1 Compliance Summary

The Naturita, Colorado, Disposal Site was inspected on May 9, 2007, and was in excellent condition. Site maintenance activities performed in 2007 included spraying noxious weeds with herbicide (two separate applications). Minor perimeter fence repairs are needed. Minor erosion along the west side of the upper access road to the monitor wells requires maintenance. No cause for a follow-up or contingency inspection was identified.

13.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Naturita, Colorado, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Disposal Site are specified in the *Long-Term Surveillance Plan [LTSP] for the Upper Burbank Disposal Cell, Uravan, Colorado* (DOE/AL/62350–250, Rev. 1, U.S. Department of Energy [DOE], Albuquerque Operations Office, July 1999) and in procedures established by DOE to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). These requirements are listed in Table 13–1.

Table 13–1. License Requirements for the Naturita, Colorado, Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Sections 3.1 and 6.2	Section 13.3.1
Follow-up or Contingency Inspections	Section 3.4	Section 13.3.2
Routine Maintenance and Repairs	Section 4.0	Section 13.3.3
Groundwater Monitoring	Section 2.6.2	Section 13.3.4
Corrective Action	Section 5.0	Section 13.3.5

Institutional Controls—The 26.65-acre disposal site is owned by the United States of America and was accepted under the NRC general license (10 CFR 40.27) in 1999. DOE is the licensee and, in accordance with the requirements for UMTRCA Title I sites, is responsible for the custody and long-term care of the site. Institutional controls at the disposal site, as defined by DOE Policy 454.1, consist of federal ownership of the property, a site perimeter fence, warning/no trespassing signs placed along the property boundary, and a locked gate at the entrance to the site access road. Inspectors found no evidence these institutional controls were ineffective or violated.

13.3 Compliance Review

13.3.1 Annual Inspection and Report

The site, located west of the former community of Uravan, Colorado, was inspected on May 9, 2007. Results of the inspection are described below. Features and photograph locations (PLs) mentioned in this report are shown on Figure 13–1. Numbers in the left margin of this report refer to items summarized in the Executive Summary table.

13.3.1.1 Specific Site Surveillance Features

Access Roads, Gates, Fence, and Signs—Access to the Naturita, Colorado, Disposal Site is from Montrose County Road EE22 that intersects State Highway 141 at Uravan, Colorado. Road EE22 approaches the site from the southeast and continues (offsite) along the northeast side of the disposal cell. The paved or graveled county road was in good condition.

The site entrance gate, located north of the disposal cell off of Road EE22, consists of a locked pair of tubular metal gates suspended from galvanized steel gateposts. The gates are in good condition. A chain and padlock secure the gate. The road through the entrance gate provides access to monitor wells adjacent to the north and west sides of the cell. This access road, which was regraded after the 2005 inspection, was in good condition; although, minor erosion was observed along the west side of the access road that will require maintenance (PL-1). In September 2005, fallen rocks were removed from the road, it was regraded, and several loads of gravel were used to fill gullies. Since that time, boulders have begun to fall onto the road again but are not a serious problem at this time. Two metal gates on the monitor well access road also were secure and in good condition.

A barbed-wire stock fence encloses the site. The fence was in excellent condition, except for a small portion between perimeter signs P5 and P6 where the top strand is loose and a broken section southeast of boundary monument BM-5 at the northernmost corner of the site. The fences will be repaired in 2008. Three locations along the perimeter fence have been identified for installation of pedestrian access gates, as a safety precaution, so that inspectors will not have to cross barbed-wire fences.

The site has 25 perimeter signs and one entrance sign. Perimeter signs, mounted on steel posts, are set approximately 5 feet inside the perimeter fence. Perimeter sign P2 has bullet holes but remains legible. The other 24 perimeter signs and the entrance sign were in good condition.

Site Markers and Monuments—The two granite site markers, SMK-1 and SMK-2, were undisturbed and in good condition.

The site property boundary has 17 corners, which are marked by either boundary monuments or survey monuments. Boundary monuments are designated BM-1 through BM-17. Three survey monuments SM-3, SM-4, and SM-11 are used in lieu of boundary monuments BM-3, BM-4, and BM-11. Survey monuments were installed during site construction for survey control; boundary monuments were installed after completion of construction to delineate the final property boundary. Both types of monuments are located with the same precision. All boundary and survey monuments were undisturbed and in good condition.

Monitor Wells—The groundwater-monitoring network has five wells: BR95-1, BR95-2, BR95-3, CM93-1, and CM93-2. All monitor wells were secure and in good condition.

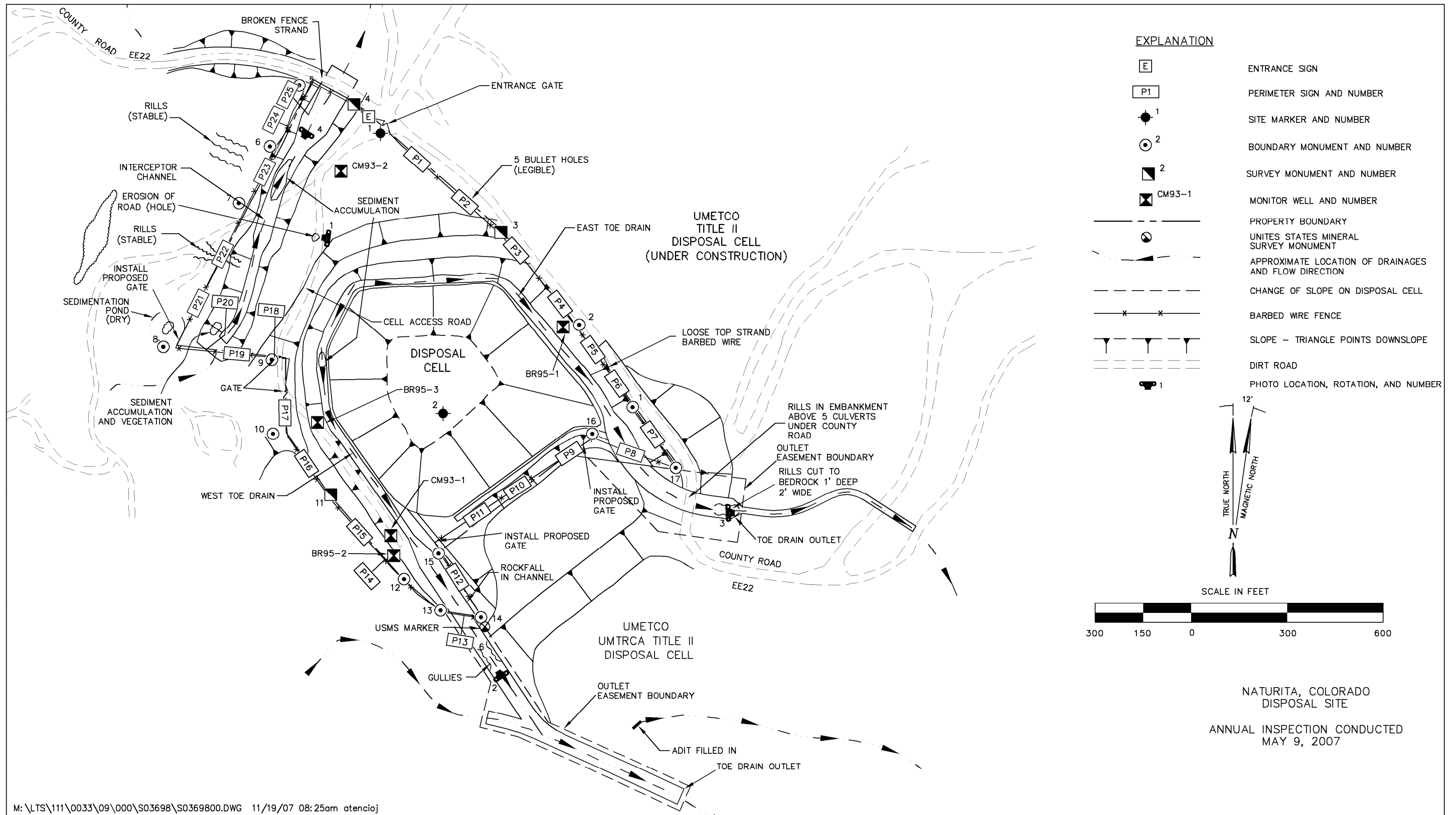


Figure 13-1. 2007 Annual Compliance Drawing for the Naturita, Colorado, Disposal Site

13.3.1.2 Transects

To ensure a thorough and efficient inspection, the site is divided into four areas referred to as transects: (1) the riprap-covered top slope and side slopes of the disposal cell; (2) the riprap-covered toe drains and toe drain outlets; (3) the riprap-covered interceptor channel; and (4) the outlying area.

Within each transect, inspectors examined specific site surveillance features, such as monitor wells, survey and boundary monuments, signs, and site markers. Inspectors examined each transect for evidence of erosion, settling, slumping, or other disturbance that might affect site integrity or the long-term performance of the site.

A fifth transect identified in the LTSP consisted of the reclaimed areas surrounding the disposal cell. Vegetation cover in this area is well established, and a storm water discharge permit that addressed this area was terminated by the State of Colorado in November 2001. Therefore, this transect is no longer formally inspected.

Top Slope and Side Slopes of Disposal Cell—The disposal cell was completed in 1998. Rock riprap covers the 2-acre top of the disposal cell and the approximate 8 acres of side slopes. The rock is rounded and is larger on the side slopes than on the top. The rock-covered surfaces showed no signs of disturbance except an irregular surface area on the southwest side of the top surface. This is an area where a standpipe was removed several years ago. The remaining portions of the top and side slopes of the disposal cell were in excellent condition. No evidence of subsidence, differential settlement, slumping, or other modifying process was noted, and no vegetation was present.

Toe Drains and Outlets—Two riprap-armored toe drains collect water from the cell side slopes and divert it to the southeast.

13A The toe drain on the west side of the cell exits through a channel quarried through the wall of the Burbank Pit and into Hieroglyphic Canyon and finally to the San Miguel River. Some sediment has accumulated in the upper end of the western toe drain, allowing scattered weeds and grasses to grow. Farther down this drain, beyond the armored portion, water is beginning to erode softer bedrock. A knickpoint has formed at the intersection of shale and overlying sandstone units within the Salt Wash Member of the Morrison Formation (PL–2). This erosion does not affect the performance of the toe drain but will continue to be monitored. Russian knapweed, a noxious weed, has been found in the past in the lower drainage area and on the island of land separating the drainage area from the adjacent Umetco UMTRCA Title II disposal cell. Although not observed during the May 2007 inspection, noxious weeds were identified during follow-up weed-control monitoring efforts and treated in June and September 2007 by a licensed herbicide applicator.

The east toe drain extends through the adjacent Umetco UMTRCA Title II disposal site and crosses beneath County Road EE22 through five culverts. Rills are present in the road embankment over the culvert outlets but are not affecting the road surface at this time (PL–3). Minor erosion of loose material has occurred in the drain outlet area, but the underlying sandstone bedrock limits further erosion. Water was observed in the drain at the time of the inspection.

Interceptor Channel—A riprap-armored interceptor channel, upgradient and northwest of the disposal cell, diverts storm water and snowmelt run-on to the northeast across County Road EE22. Some erosion has occurred outside the property uphill from perimeter signs P23 and P21, resulting in deposition of sediment in the channel. The rills appear to be stable, and vegetation is establishing in the accumulated sediment in the channel (PL-4). Otherwise, the channel is in excellent condition and the sediment and vegetation do not impair the function of the channel. No culvert was installed where the channel crosses the road, so the road could potentially be damaged if and when storm water exits the channel. (To date, storm water has not affected the road.)

Three species of noxious weeds, halogeton, Russian knapweed, and tamarisk were discovered in and adjacent to the interceptor channel and were treated with herbicide in 2006. Only a few halogeton plants were observed during the May 2007 inspection, and these were treated in June 2007 by a licensed herbicide applicator.

Outlying Area—The site boundary and the area within 0.25 mile of the site boundary have been highly disturbed by mining, quarrying, and road building activities. Umetco is continuing to work on its tailings disposal cell across County Road EE22 east of the site. Umetco's completed UMTRCA Title II disposal cell abuts the Naturita disposal cell on the southeast.

Russian knapweed and tamarisk growing in a sedimentation pond above the interceptor channel adjacent to the property boundary (near boundary monument BM-8) were sprayed with herbicide in 2006. No tamarisk plants were observed during the inspection, and no other live noxious weeds were present.

Russian knapweed and halogeton plants were observed adjacent to County Road EE22 along the northeast and southeast sides of the disposal cell boundary during the May 2007 inspection. These were treated in June and September 2007 by a licensed herbicide applicator.

13.3.2 Follow-Up or Contingency Inspections

DOE will conduct follow-up inspections if (1) a condition is identified during the annual inspection or other site visit that requires a return to the site to evaluate the condition, or (2) DOE is notified by a citizen or outside agency that conditions at the site are substantially changed.

No follow-up or contingency inspections were required in 2007.

13.3.3 Routine Maintenance and Repairs

DOE applied herbicide to control noxious weeds during June and September 2007. Minor erosion along the west side of the access road requires maintenance. Loose and broken wire strands in the perimeter fence require repair.

13.3.4 Groundwater Monitoring

Groundwater monitoring was not conducted during 2007. Groundwater monitoring was last performed in 2006, and will be performed again in 2008.

In accordance with the LTSP (beginning in 2000), DOE monitors groundwater at the site every two years as a best management practice to demonstrate the initial performance of the disposal cell. The compliance strategy is to not exceed maximum concentration limits (MCLs) established in Table 1 to Subpart A of 40 CFR 192 or background levels in a point-of-compliance well (CM93-2) in the uppermost aquifer (Wingate Sandstone) downgradient from the disposal cell. The Wingate Sandstone lies approximately 600 feet beneath the disposal cell and is hydrologically isolated from the surface by unsaturated sandstone and relatively impermeable shale layers (aquitard) of the Salt Wash Member of the Morrison Formation and the Summerville Formation, respectively.

Groundwater monitoring is performed in three shallower monitor wells (BR95-1, BR95-2, and BR95-3), completed at the contact between the Salt Wash Member and the Summerville Formation, to provide early warning of possible migration of contaminants. If contamination suspected to be related to the disposal cell is observed at this horizon, DOE will sample two deeper wells (CM93-1 and CM93-2) screened in the uppermost aquifer (Wingate Formation). Indicator analytes are arsenic, molybdenum, and uranium. Monitor wells CM93-1 and CM93-2 in the uppermost aquifer (Wingate Sandstone) were last sampled in May 1997, and concentrations of all indicator analytes were at or near detection limits and thus well below the respective MCLs.

In accordance with the LTSP, the need for continued groundwater monitoring was evaluated following 5 years of monitoring (the 2004 sampling event). The monitoring evaluation recommended a reduction in groundwater monitoring. This recommendation considered the following information: (1) the uppermost aquifer is hydrologically isolated from the surface by an aquitard consisting of unsaturated sandstone and relatively impermeable shale layers; (2) historical monitoring has demonstrated contamination does not occur within the uppermost aquifer; and (3) naturally occurring uranium mineralization affects water quality within the surface formation on which the disposal cell is constructed.

Based on that evaluation and the 2006 sampling results, DOE plans to sample all five wells in 2008, and if the results indicate that concentrations of indicator analytes have not increased significantly, will recommend discontinuing groundwater monitoring altogether. Any change in monitoring at the site is dependent on NRC concurrence.

13.3.5 Corrective Action

Corrective action is taken to correct out-of-compliance or hazardous conditions that create a potential health and safety problem or that may affect the integrity of the disposal cell or compliance with 40 CFR 192.

No corrective action was required in 2007.

13.3.6 Photographs

Table 13–2. Photographs Taken at the Naturita, Colorado, Disposal Site

Photograph Location Number	Azimuth	Description of Photograph
PL–1	290	Erosion along west side of the access road.
PL–2	330	Headcut upgradient of the west drainage outlet.
PL–3	85	Erosion at the east toe drain outlet, east side of County Road EE22.
PL–4	215	Sediment accumulation and vegetation growth in the interceptor channel.



NAD 5/2007. PL-1. Erosion along west side of the access road.



NAD 5/2007. PL-2. Headcut upgradient of the west drainage outlet.



NAD 5/2007. PL-3. Erosion at the east toe drain outlet, east side of County Road EE22.



NAD 5/2007. PL-4. Sediment accumulation and vegetation growth in the interceptor channel.